

CLAIMS:

1. A magnetic resonance imaging apparatus which is provided with at least one electrical accessory device (6; 10, 11) for use during the examination of an object, as well as with a connection lead (13) which is to be guided through an examination zone (1) of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and which lead is intended to connect the accessory device (6; 10, 11) to a connection unit (12), at least one lead segment (131, 132, ...), having a length which is limited by at least one inductive coupling element (141, 142, ...; 161, 162, ...) and is unequal to $n*\lambda/2$, being connected in the connection lead (13), where λ denotes the RF wavelength and $n = 1, 2, 3, \dots$.
- 5 2. A magnetic resonance imaging apparatus as claimed in claim 1, in which the length of the lead segment (131, 132, ...) is in the range of from $\lambda/4$ to $\lambda/8$.
- 10 3. A magnetic resonance imaging apparatus as claimed in claim 1, in which the inductive coupling element is a transformer (141, 142, ...).
- 15 4. A magnetic resonance imaging apparatus as claimed in claim 3, in which the transformer (141, 142, ...) is formed by a toroid as well as a primary and secondary winding wound thereon.
- 20 5. A magnetic resonance imaging apparatus as claimed in claim 1, in which the inductive coupling element is a conductor loop (161, 162, ...).
6. A magnetic resonance imaging apparatus as claimed in claim 1, in which the connection lead (13) is a two-wire lead or a coaxial lead.
- 25 7. A magnetic resonance imaging apparatus as claimed in claim 1, in which the inductive coupling element (141, 142, ...; 161, 162, ...) is bridged by ohmic resistors (R) in order to transfer direct voltage signals via the connection lead (13).

8. A magnetic resonance imaging apparatus as claimed in claim 1, in which the inductive coupling element (141, 142, ...; 161, 162, ...) is connected so as to form a resonant circuit in conjunction with at least one capacitive element (C1, C2), the resonance condition of said resonant circuit being satisfied for the frequency of a signal to be transferred via the
5 connection lead (13).
9. A magnetic resonance imaging apparatus as claimed in claim 1, in which the accessory device is an RF body coil (6) or a catheter (10) with a transmission and/or receiving unit (11).
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10. A body coil which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus, provided with a connection lead (13) which is arranged so as to extend through an examination zone (1) of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field and to
15 connect the body coil (6) to a connection unit (12), at least one lead segment (131, 132, ...), having a length which is limited by at least one inductive coupling element (141, 142, ...; 161, 162, ...) and is unequal to $n*\lambda/2$, being connected in the connection lead (13), where λ denotes the RF wavelength and $n = 1, 2, 3, \dots$.
- 20 11. A catheter (10) with a transmission and/or receiving unit (11) which forms an accessory device for use during the examination of an object by means of a magnetic resonance imaging apparatus, provided with a connection lead (13) which is arranged so as to extend through an examination zone (1) of the magnetic resonance imaging apparatus, which zone can be exposed to an RF field, and to connect the transmission and/or receiving
25 unit (11) to a connection unit (12), at least one lead segment (131, 132, ...), having a length which is limited by at least one inductive coupling element (141, 142, ...; 161, 162, ...) and is unequal to $n*\lambda/2$, being connected in the connection lead (13), where λ denotes the RF wavelength and $n = 1, 2, 3, \dots$.